



# Clarion Environmental Lubricants

**The webinar will begin in less than 10 minutes.**

Erica McDonald



# Clarion Environmental Lubricants

**The webinar will begin in less than 5 minutes.**

Erica McDonald



# Clarion Environmental Lubricants

Erica McDonald

# Erica McDonald

- Product Specialist, CITGO Petroleum Corporation
- 10 years of lubrication experience
- Career focus: lubrication quality control and oil analysis.
- Current role centers on the development and improvement of industrial, environmentally friendly, and food grade lubricants.
- BS in Biology, and a minor in Chemistry from Southern Illinois University, Edwardsville





# Agenda

- North American Market
- Application Outlook
- Environmental Market Overview
- Why Environmental Products?
- Environmental Applications
- VGP Applications
- VGP Standards
- Clarion Green Products



# North American Market

- North America has the highest growth rate of 7.1% ACGR.
- Estimated Market Value 2018 - USD \$849,000,000
- Estimated Market Value 2025 - USD \$1,370,000,000

		<b>7.1% CAGR Shown in MM USD</b>					
2018	2019	2020	2021	2022	2023	2024	2025
849	908	972	1,041	1,115	1,194	1,279	1,370

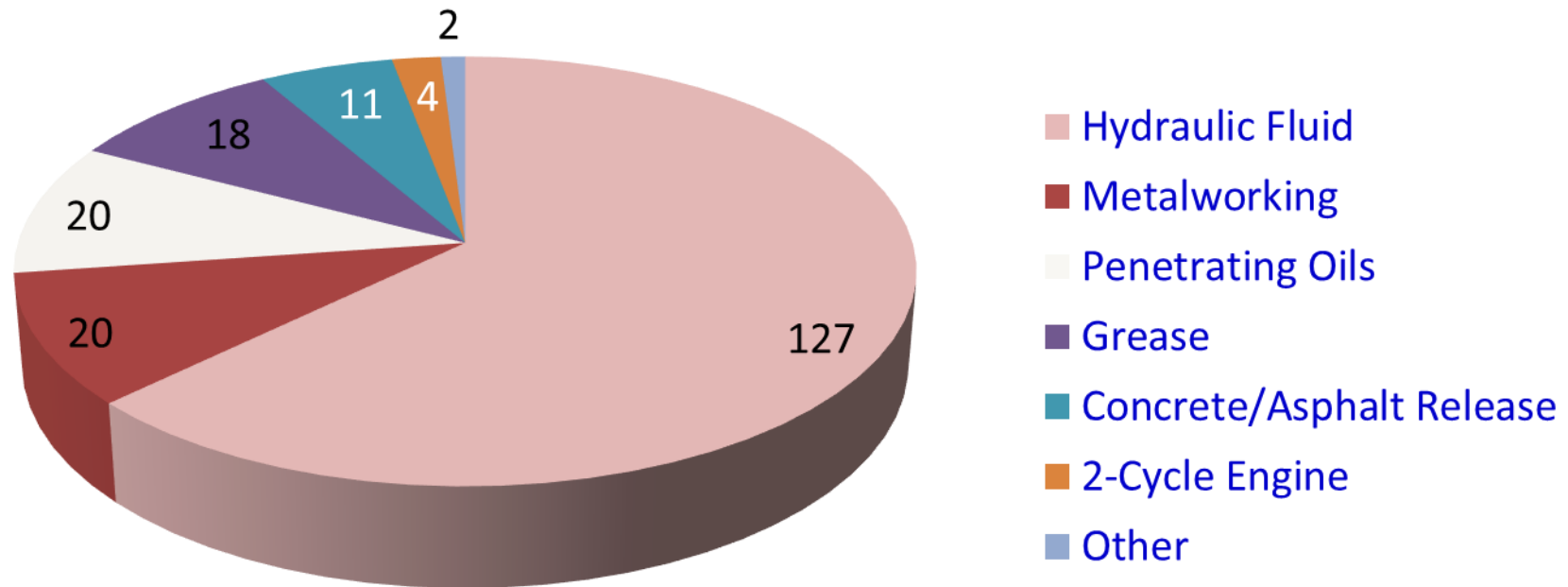


## Application Outlook

- Hydraulic fluids and tractor transmission oils
- Greases and stern tube greases
- Stern tube oils
- Chainsaw Oils
- Concrete release agents
- Wire rope oils
- Two-stroke oils
- Industrial and marine gear oil

# Environmental Products in Market

Number of Products





# Why Environmental Products

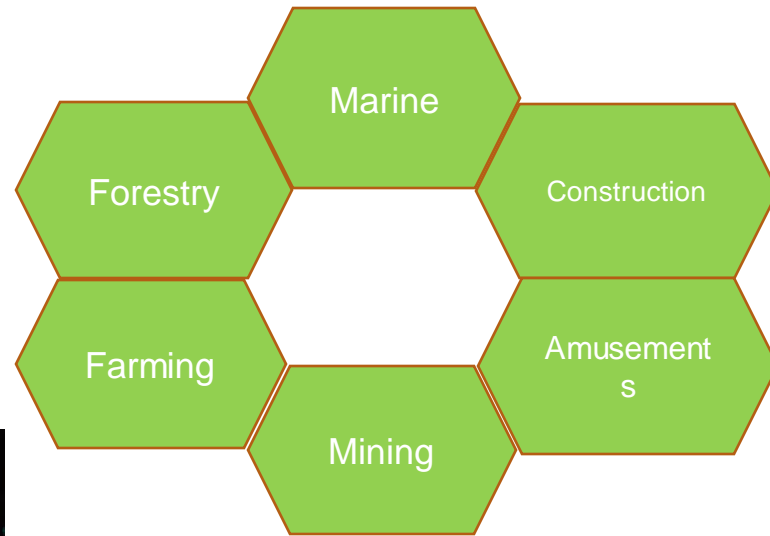
- 2.5 billion gallons of lubricants sold in North America
- 60% goes unaccounted for and ends up in rivers, lakes and on the ground



Source: "The Advantages and Disadvantages of Biodegradable Lubricants" Josh Pickle, Machinery Lubrication, Noria Corporation 2/2012



# Environmental Applications



# VGP Applications



Harbor Dock and Towing - Sulphur LA



## VGP Standards

- The EPA VGP - 2013 covers discharges from Marine vessels
- Commercial vessels 79 feet and over. Operating In US territory waters.
- All vessels less than 79 feet are not covered by VGP
- All vessels covered under VGP must use EALs



# 2013 Vessel General Permit

Defines Environmentally Acceptable Lubricants (EALs)

- Biodegradable
- Minimally Toxic
- Not Bioaccumulative
- Defines each of the above in Appendix A



# 2013 Vessel General Permit Definitions

## Biodegradable

- Lube formulas with at least 90% readily biodegradable component
- Grease formulas with at least 75% readily biodegradable
- Up to 5% of lube formula can be non-biodegradable, but not bio accumulative. Balance must be inherently biodegradable.
- For grease, up to 25% can be either inherently or non-biodegradable, but not bio accumulative.



# Terminology

ASTM D5864 defines biodegradation as: “The process of chemical breakdown or transformation of a substance caused by organisms or their enzymes.”

## **Readily** Biodegradable

Biodegrades rapidly

## **Inherently** Biodegradable (propensity to biodegrade)

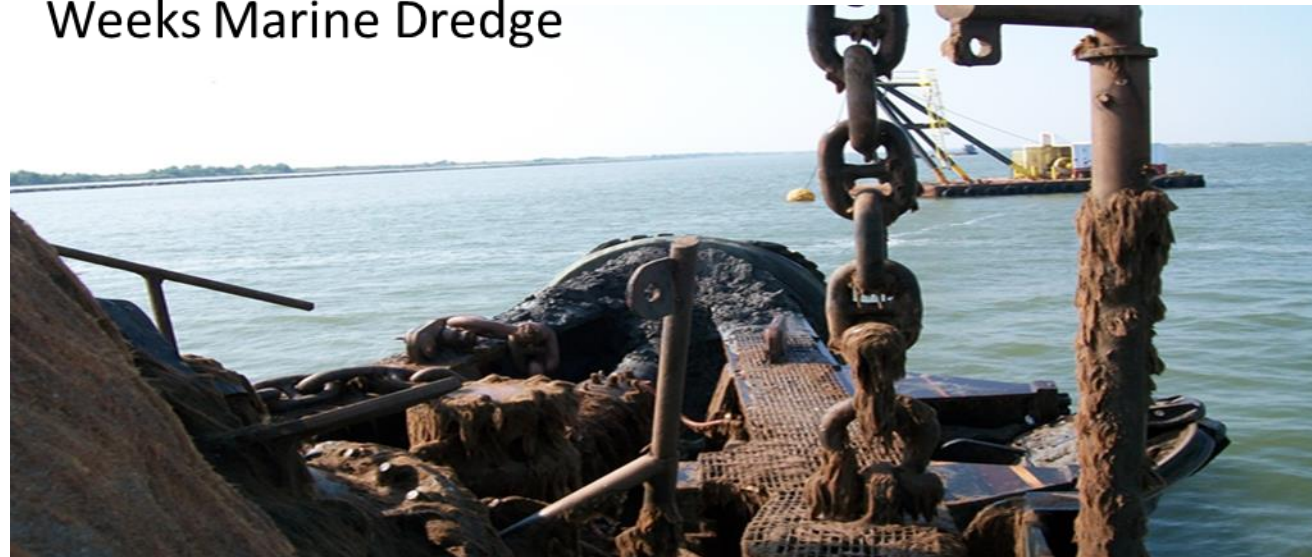
Biodegrades slowly

# Clarion Green Products



CLARION BIO or Syn gear oil 320  
CLARION Green BIO 68

Weeks Marine Dredge





# Clarion Green Products



Callon Dredging-Galveston



Enterprise Marine  
CLARION Green BIO 46

Weeks-Marsh Buggy  
CLARION Green SYN AW 46





## Clarion Green Products – Users (other)

- Department of Transportation
  - Roads and Bridges
- Corp of Engineers
  - Locks and Dams
- Heavy Equip Contractors
  - Environmentally Sensitive Areas
  - Contracted for Environmental Lubricants



## Clarion Green Synthetic Fluids

- Readily biodegradable, meets 2013 VGP requirements
- Fully synthetic ester-based hydraulic fluids
- ISO 22, 32, 46,68



## Clarion Green Bio

- Readily biodegradable, meets 2013 VGP requirements
- High oleic natural ester hydraulic fluids
- ISO 32, 46, 68



## Clarion Green Synthetic Gear Lubricants

- Fully synthetic ester-based gear lubricants
- Readily biodegradable, meets 2013 VGP requirements
- ISO 150, 220, 320



## Clarion Green AW Oils

- White mineral base (finished formula is not food grade)
- Inherently biodegradable, does not meet 2013 VGP
- Passes EPA static sheen test
- ISO 32, 46, 68



## Clarion Green Gear Lubricants

- White mineral base (finished formula is not food grade), AGMA EP Oils
- Inherently biodegradable, does not meet 2013 VGP
- Passes EPA static sheen test
- ISO 220, 320, 460



## Clarion – Peace of Mind

- Although all spills must be reported, users of Clarion Green products know that those products meet the relevant EPA or Coast Guard regulations
- Clarion products provide the protection needed for equipment used in and around marine environments





# Questions

- Please post your questions using the Q&A function.



## How to Contact Us

- Lubes Answer Line
- **800-248-4684**
  - 8:00 AM - 12:00 PM, 1:00 PM – 5:00 PM CT (Mon – Thurs)
  - 8:00 AM - 12:00 PM, 1:00 PM – 4:30 PM CT (Fri)
- [lubeshelp@citgo.com](mailto:lubeshelp@citgo.com)
  - Available 24/7



## Future Webinars

- ISO Cleanliness Requirements for Various Applications  
December 10<sup>th</sup>
- Railroad Industry Products and Sales  
December 17<sup>th</sup>